In The Title:

Please replace the Title with the following:

--Ultrasonic Catheter, System and Method For Two-Dimensional Imaging Or Three-Dimensional Reconstruction--.

In The Specification:

Page 9, line 8, delete "circle";

line 15, replace "probe" with --catheter--.

Page 17, line 33, replace the second occurrence of "1" with --1'--.

Page 19, line 25, after "which" insert --a--.

In The Claims:

Please cancel claims 9, 10 and 13-15 without prejudice.

Please amend claims 4-6, 11, 12, 16, 17, 20, 23 and 25 as follows:

4. (Amended) An ultrasonic catheter according to Claim 2 wherein the linear phased array is disposed [on the body] proximal of the [first] radial phased array.

5. (Amended) [A] An ultrasonic catheter according to Claim 2 further comprising a third ultrasonic array wherein the third ultrasonic array is a second radial phased array [disposed around the circumference of said distal end region of said body wherein the second radial phased array] which is separated from the [first] radial phased array along the longitudinal axis of the body.

6. (Amended) [A] An ultrasonic catheter according to Claim 5 wherein the linear phased array is disposed between the [first] radial phased array and the second radial phased array[s].

9 ~~11~~. (Amended) [A] An ultrasonic catheter according to Claim 2 wherein the linear phased array has a plurality of transducer elements sequentially disposed along the longitudinal axis of the body.

10 ~~12~~. (Amended) [A] An ultrasonic catheter according to Claim 2 wherein the linear phased array is curved around [the] a distal most point of the distal end region of the body.

11 ~~16~~. (Amended) An ultrasonic system according to Claim 7 further comprising a display system coupled to the transmit and receive beamformers to display the acquired image frames from the [imaging and tracking transducer] first and second arrays.

17. (Amended) An ultrasonic system according to Claim 7 further comprising a computer coupled to the transmit and receive beamformers wherein the computer is programmed to (1) acquire two-dimensional image information in an image plane generated by [a] the first array upon excitation by the transmit beamformer, (2) acquire tracking two-dimensional data information in one tracking plane oriented at a non-zero angle with respect to the image plane with [a] the second array upon excitation by the transmit beamformer; (3) repeat steps (1) and (2) after the catheter has been moved along a direction having a component of motion in the tracking plane (4) determine the component of

motion based on a comparison of the tracking two-dimensional data information acquired in steps (2) and (3), and (5) use the component of motion determined in step (4) to register the first image information acquired in step (3) with the image information acquired in step (1).

20. (Amended) A method for registering image information acquired from an interior region of a patient, said method comprising the steps of:

(a) inserting a catheter <u>into a patient to image an interior region of the patient, the catheter</u> having a body having a longitudinal axis, a circumference and a distal end region, a first ultrasonic transducer array disposed in the distal region of the body and a second phased ultrasonic transducer array disposed [around the circumference of] <u>in</u> the distal end region of the body [into a patient to image an interior region of the patient];

(b) acquiring [first] two-dimensional image information in an image plane with the first ultrasonic transducer array;

(c) acquiring tracking two-dimensional data information in a tracking plane oriented at a non-zero angle with respect to the image plane with the second ultrasonic transducer array;

(d) repeating steps (b) and (c) after moving the catheter along a direction having a component of motion in the tracking plane;

(e) automatically determining the component of motion based on a comparison of the tracking two-dimensional data information acquired in steps (c) and (d); and

(f) automatically using the component of motion determined in step (e) to register the first image information acquired in step (d) with the first image information acquired in step (b).

23. (Amended) The method according to Claim 20 wherein the step of moving the [linear phased and radial phased arrays] catheter comprises rotating the catheter about its longitudinal axis.

25. (Amended) A method for imaging a cardiac structure, the method comprising the steps of:

(a) inserting a catheter having a body having a longitudinal axis, a circumference and a distal end region with a [linear] first phased ultrasonic transducer array and a [radial] second phased ultrasonic transducer array disposed thereon;

(b) acquiring image information from the [linear] first phased ultrasonic transducer array; and

(c) acquiring image information from the [radial] second phased ultrasonic transducer array.

Please add new claims 32-73 as follows:

--32. An ultrasonic catheter according to Claim 2 wherein the radial array is an annular array.

~~33.~~ An ultrasonic catheter according to Claim 2 wherein the radial array is a curved linear phased array.

~~34.~~ An ultrasonic catheter according to Claim 2 wherein the radial array is a planar linear phased array.

~~35.~~ An ultrasonic catheter according to Claim 5 wherein the radial phased array and second radial phased array are annular arrays.

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~~36.~~ An ultrasonic catheter according to Claim 5 wherein the radial phased array is an annular array and the second radial phased array is a curved linear phased array.

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~~37.~~ An ultrasonic catheter according to Claim 5 wherein the linear phased array is a curved array.

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~~38.~~ An ultrasonic catheter according to Claim 6 wherein the radial phased array and the second radial phased array are annular arrays.

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~~39.~~ An ultrasonic catheter according to Claim 6 wherein the radial phased array is an annular array and the second radial phased array is a curved linear phased array.

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~~40.~~ An ultrasonic catheter according to Claim 2 wherein the linear phased array is disposed distal of the radial phased array.

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~~41.~~ An ultrasonic catheter according to Claim ~~40~~ 35 wherein the radial phased array is an annular array.

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~~42.~~ An ultrasonic catheter according to Claim ~~41~~ 36 wherein the linear phased array is a curved array.

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~~43.~~ An ultrasonic catheter according to Claim ~~40~~ 35 further comprising a second radial phased array disposed in the distal end region of the body.

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~~44.~~ An ultrasonic catheter according to Claim ~~43~~ 38 wherein the second radial phased array is disposed proximal of the radial phased array.

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45. An ultrasonic catheter according to Claim 44 wherein the radial phased array and second radial phased array are annular arrays.

41 12
46. An ultrasonic system according to Claim 17 further comprising a display system coupled to the transmit and receive beamformers to display the two-dimensional image information and the component of motion determined in step (3) 47.

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47. An ultrasonic catheter according to Claim 17 further comprising the steps of repeating steps (1), (2) and 3 47 and accumulating the component of motion determined in step (3) 47 to generate a composite detected motion wherein the composite detected motion indicates the motion of the catheter with respect to a predetermined reference point.

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48. An ultrasonic system according to Claim 46 wherein the first array is a linear phased array and the second array is a radial phased array.

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49. An ultrasonic system according to Claim 48 wherein the composite detected motion is illustrated as a circular icon with an arrow indicating the degree of rotation from a reference point.

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50. An ultrasonic system according to Claim 49 further comprising a numerical display of the composite detected motion.

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51. An ultrasonic system according to Claim 49 wherein the computer is further programmed to acquire two-dimensional image information in an image plane generated by the second array upon excitation by the transmit beamformer

and the display system displays the two-dimensional image information generated by the second array.

47 52. An ultrasonic system according to Claim 51 wherein the circular icon is displayed over the two-dimensional image information generated by the second array.

48 53. An ultrasonic system according to Claim 52 wherein the position of the two-dimensional image information changes according to the composite detected motion.

49 54. An ultrasonic system according to Claim 46 wherein the first array is a radial phased array and the second array is a linear phased array.

50 55. An ultrasonic system according to Claim 54 wherein the composite detected motion is illustrated as a ruler icon with an arrow indicating the degree of translation from a reference point.

51 56. An ultrasonic system according to Claim 55 further comprising a numerical display of the composite detected motion.

52 57. An ultrasonic system according to Claim 55 wherein the computer is further programmed to acquire two-dimensional image information in an image plane generated by the second array upon excitation by the transmit beamformer and the display system displays the two-dimensional image information generated by the second array.

53 58. An ultrasonic system according to Claim 57 wherein the ruler icon is displayed over the two-dimensional

image information generated by the second array.

59. An ultrasonic system according to Claim 58 wherein the position of the two-dimensional image information compensates for the composite detected motion.

60. The method of Claim 20 further comprising the steps of:

(g) repeating steps (b), (c), (d) and (e) and accumulating the component of motion detected in step (e) to generate composite detected motion wherein the composite detected motion indicates the motion of the catheter with respect to a predetermined reference point;

(h) displaying the two-dimensional image information acquired in step (a); and

(i) displaying the composite detected motion determined in step (e).

61. The method according to Claim 60 wherein the step of displaying the composite detected of motion comprises displaying an icon representation of the composite detected motion.

62. The method according to Claim 61 wherein the second array is a radial phased array and the icon is a circle with an arrow indicating the degree of rotation.

63. The method according to Claim 61 wherein the second array is a linear phased array and the icon is a ruler with an arrow indicating the degree of translation.

64. The method according to Claim 60 further comprising the step of (i) acquiring two-dimensional image information in the tracking plane with the second array; and

(j) displaying the two-dimensional image information acquired in step (i).

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65. The method according to Claim ~~64~~ wherein the step of displaying the composite detected motion comprises displaying an icon representative of the composite detected motion.

61 60
66. The method to Claim ~~65~~ wherein the icon is displayed over the two-dimensional image information displayed in step (j).

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67. The method according to Claim ~~60~~ wherein the step of displaying the composite detected motion comprises displaying a numerical value representative of the composite detected motion.

63 20
68. A method according to Claim ~~25~~ wherein the first array is a linear phased array and the second array is a radial phased array.

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69. A method according to Claim ~~68~~ wherein the radial phased array is an annular array.

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70. An ultrasonic system according to Claim ~~17~~ further comprising a display system coupled to the transmit and receive beamformers to display a three-dimensional image.

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71. The method of Claim ~~20~~ further comprising the step of displaying a three-dimensional image.